APPENDIX H

Foundation Excavation Observation Standards

Sensitive Lands Evaluation & Development Standards (SLEDS)
Chapter 19.72, COTTONWOOD HEIGHTS CODE OF ORDINANCES

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1.0 INTRODUCTION

1.1 ***Introduction***. The procedures contained in this appendix are intended to provide consultants with a general outline for performing quantitative foundation excavation observation studies and reports for the development of structures within Cottonwood Heights (the "*city*"). These standards constitute the minimum level of effort required in conducting these studies. The information presented herein does not relieve consultants of their duty to identify and perform additional geologic or engineering analyses they believe are necessary to assess the suitability of development at a site.

1.2 ***Purposes***. The purposes for establishing minimum standards for foundation excavation observation studies are to:

(a) Protect the health, safety, welfare, and property of the public by minimizing the potentially adverse effects of development on unsuitable soils and/or high groundwater;

(b) Assist property owners, contractors and land developers in conducting reasonable and adequate foundation excavation observation studies; and

(c) Ensure that the recommendations from the subdivision's geotechnical soils investigation are followed. If no report exists, ensure that a licensed engineer observes the foundation excavation and performs any necessary analyses to determine the suitability of the soils for the proposed building. The engineer shall report that the site is suitable for the proposed structure and that all recommended mitigation has been performed to render the site buildable.

1.3 ***Areas requiring foundation excavation observation reports*.** A foundation excavation observation report shall be performed for all proposed development or redevelopment within the city.

1.4 ***Roles of professionals*.** Analyses of soils that shall support a structure shall be performed only by or under the direct supervision of licensed professionals, qualified and competent in their respective area of practice.

2.0 GENERAL REQUIREMENTS

The expertise of qualified professional engineers, retained at the developer's cost, is required to verify the suitability of the soil for the construction of a proposed structure and ensure that the actual *in-situ* soil material is consistent with previous reports and ensure that the recommendations from those reports have been followed. If no previous reports have been prepared, an engineer shall make appropriate analyses of the *in-situ* material to determine the suitability of the site for construction and report that all necessary mitigation measures have been performed.

3.0 SUBMITTALS

3.1 ***Rexplanatory letter***. A letter that states that the site is suitable for development shall be accompanied by an appendix with all pertinent data that was used to determine the suitability of

the site for development, include boring logs; geologic cross sections; trench and test pit logs; laboratory data (Atterberg limits, plasticity, soil classification, soil bearing capacity, shear strength test results, density test results etc.); and a discussion regarding the suitability of the site for development. The appendix will contain recommendations for the footings and foundation of the structure such as backfill requirements, additional compaction, drainage, elevation, pilings, bedrock, or any other mitigation measure to meet current building codes, ensure adequate soil bearing capacity, prevent flooding or other adverse factors.

3.2 ***Subsurface conditions***. Subsurface groundwater conditions must be considered and must include an estimate of the maximum anticipated groundwater elevation. If the site contains sewage or storm water infrastructure or is proposed, the recommendations shall reflect the potential impact from a 10-year and 100- year storm event.

3.3 ***Background documentation***. The results of any foundation excavation observation study must be submitted with pertinent backup documentation such as soil logs, laboratory test data, calculations, photographs, measurements and other pertinent data.

4.0 SITE INVESTIGATION AND SOIL INVESTIGATION STUDIES

Adequate evaluation and comprehensive geotechnical engineering studies shall be used to evaluate the suitability of the soil to support the proposed building structure. As directed by the engineer, adequate soil sampling of the subsurface material may be necessary to perform geotechnical testing to determine the soil bearing capacity and other strength parameters to determine the suitability of the soil. In general, the foundation observation evaluation shall follow the following phases:

4.1 ***Review***. Review the soils report or geotechnical investigation that has been performed for the subject site. Understand all relevant geotechnical features related to the property, including groundwater, soil bearing capacity, soil type, drainage, proximity to a flood zone, and all other pertinent geologic factors.

4.2 ***Excavation*.** Conduct a foundation excavation inspection prior to the placement of footings. Assess the potential for groundwater below the proposed footings as necessary.

4.3 ***Observation and assessment***. Observe that all of the recommendations from the previous reports have been implemented. Observe that the soil properties are consistent with the findings and assumptions in the report. Assess the groundwater potential and observe that the elevation and drainage is suitable for the proposed structure.

4.4 ***Documentation and evaluation*.** Documentation and evaluation of subsurface groundwater conditions (including effects of seasonal and longer-term natural fluctuations as well as landscape irrigation), surface water, on-site sewage disposal, and/or storm water disposal.

4.5 ***Additional suitability analysis*****.** If no previous geotechnical report has been performed, the licensed engineer shall perform whatever work is deemed necessary to evaluate the suitability of the site for development.

4.6 ***Report***. Prepare a signed and wet stamped letter to the city that the site has been observed and has been deemed suitable for the proposed development. Once this letter has been received and accepted by the city, the placement of footings may commence.

5.0 MITIGATION

If *in-situ* soil conditions are inconsistent with previous reports and recommendations, a qualified engineer shall perform whatever tests are necessary to assess if the site is suitable for development. If the site is not suitable for development, an engineer may develop mitigation measures and shall report that these measures have been met in a signed and wet stamped letter to the city prior to the construction of footings.

6.0 NOTICE OF GEOLOGIC HAZARD AND WAIVER OF LIABILITY

For developments where full mitigation of recommended measures is not implemented, a notice of geotechnical hazard acceptable to the city shall be recorded with the proposed development describing the hazard at issue and the partial mitigation employed. The notice shall clearly state that the hazard at the site has been reduced by the partial mitigation, but not totally eliminated. In addition, the owner shall (a) be deemed to have assumed all risks and waived all claims against the city and its officers, employees, agents, contractors, consultants and other related parties consultants, and (b) indemnify and hold the city and such related parties harmless from any and all claims arising from the partial mitigation of the seismic displacement hazard.